BISS Biodiversity Information Science and Standards

Biodiversity Information Science and Standards 8: e140111
doi: 10.3897/biss.8.140111

OPEN ACCESS

Conference Abstract

City Oasis: Can Parks Be Havens for Biodiversity? A Look at Ecopark, Rajarhat

Arjan Basu Roy[‡], Lina Chatterjee[‡], Tarak Samanta[‡], Nivedita Sengupta[‡], Vijay Barve[§,‡]

‡ Nature Mates Nature Club, Kolkata, India
§ Natural History Museum of Los Angeles County, Los Angeles, United States of America

Corresponding author: Arjan Basu Roy (basuroyarjan@gmail.com)

Received: 23 Oct 2024 | Published: 24 Oct 2024

Citation: Basu Roy A, Chatterjee L, Samanta T, Sengupta N, Barve V (2024) City Oasis: Can Parks Be Havens for Biodiversity? A Look at Ecopark, Rajarhat. Biodiversity Information Science and Standards 8: e140111. https://doi.org/10.3897/biss.8.140111

Abstract

Urban parks offer a vital refuge for biodiversity in large cities, providing a wealth of ecosystem services. Larger parks and reserves within these urban areas tend to boast higher species richness than smaller urban parks, as they function as protected areas that harbor both diverse plants and animals (Nielsen et al. 2014). This study also explored how faunal species utilize restored habitats within Ecopark at Rajarhat, a large urban park (Besra et al. 2022, Chatterjee et al. 2023, Rong et al. 2023). Data on species richness and resource use were collected over a period of two years (November 2020–October 2022) using line transects, point counts, light traps, and netting methods. Rarefaction analysis is a method used to measure the species richness and diversity and visual representations. Data representation using conventional images, including plots and charts, revealed significant differences in how species utilize resources and partition niches across various habitat types within the park. Based on their habitat preferences, species were observed in forestland, marshland, grassland, and water bodies within the park (Rong et al. 2023). There were 28 species of fungi across eight orders and 17 families (Samanta et al. 2022a). Additionally, 127 floral species belonging to 28 orders with 49 families (Biswas et al. 2023), and 395 species of fauna across 45 orders and 153 families (Chatterjee et al. 2022a, Roy et al. 2022a, Rong et al. 2023,Samanta et al. 2022b ,Roy et al. 2022b) were included in this summary to highlight the biodiversity in this urban park. We mobilized these datasets through the Global Biodiversity Information Facility

(Chatterjee et al. 2022b) to make sure the data is readily available for a wider set of data users and as open access. These findings suggest that habitat restoration efforts within Ecopark have significantly enriched faunal biodiversity. Because of rapid urbanization around the park, species have relocated from degraded habitats to the park's protected areas. The study's recommendations can guide conservation strategies to protect native species and contribute to a self-sustaining ecosystem within the park and surrounding areas.

Keywords

diversity, fauna, flora, conservation, urban park, India

Presenting author

Arjan Basu Roy

Presented at

SPNHC-TDWG 2024

Acknowledgements

The authors are grateful for all the support received from West Bengal Housing Infrastructure Development Corporation (WBHIDCO), especially to Mr. Debashis Sen for all his encouragement. We are also grateful to all the members of the Nature-Mates Nature Club for their continuous support and guidance.

Hosting institution

Nature Mates-Nature Club

Author contributions

Arjan Basu Roy: Contributed plan of the work, interpretation & overall supervision. Lina Chatterjee: Designing the research work, writing original draft, data collection, and photographic documentation. Tarak Samanta: Field data collection, designed the research work, and contributed in writing. Nivedita Sengupta: has contributed to field work, data collection and contributed in writing. Vijay Barve: has contributed in supervision, proofreading, and designing.

Conflicts of interest

The authors have declared that no competing interests exist.

References

- Besra S, Chatterjee L, Samanta T, Sinha S, Roy AB (2022) Importance of artificial water bodies in maintaining a balanced food web and freshwater biodiversity in an urban park. International Journal of Fisheries and Aquatic Studies 10 (06): 28-33. https://doi.org/10.22271/fish.2022.v10.i6a.2746
- Biswas S, Basu Roy A, Samanta T, Chatterjee L, Sengupta N, Barve V (2023) Occurrence Dataset for Plant Species in Pakhibitan, Ecopark, Newtown, North 24 Parganas, West Bengal, India, 2019. Nature Mates-Nature Club. Occurrence dataset accessed via GBIF on 2024-10-18. https://doi.org/10.15468/ejnfwq
- Chatterjee L, Samanta T, Roy AB, Sinha S, Besra S (2022a) Insect diversity (except Odonata and Lepidoptera) assessment of Ecopark, an urban park In Kolkata, West Bengal, India. Journal of Global Biosciences 11 (7): 9383-9392. URL: https://www.mutagens.co.in/jgb/vol.11/110702.pdf
- Chatterjee L, Samanta T, Sinha S, Besra S, Roy AB (2022b) Analysis of avifaunal diversity, richness, status and food guild in Ecopark, West Bengal, India. Species 23 (72): 441-451. URL: https://discoveryjournals.org/Species/current_issue/2022/v23/n72/A17.pdf
- Chatterjee L, Roy AB, Samanta T, Sengupta N, Barve V (2023) Documentation of biodiversity in Newtown Ecopark, North 24 Parganas, West Bengal, India (2020-2022), excluding floral components. GBIF Occurrence Dataset. URL: https://doi.org/10.15468/t48m5z
- Nielsen AB, Den Bosch M, Maruthaveeran S, Bosch CK (2014) Species richness in urban parks and its drivers: A review of empirical evidence. Urban ecosystems 17: 305-327. https://doi.org/10.1007/s11252-013-0316-1
- Rong A, Besra S, Chatterjee L, Samanta T, Mazumdar S, Hazra D, Samrat. CS, Roy AB (2023) A Comprehensive Study on Diversity and Land Use of the Bird Species around Eco Park Area, Kolkata, West Bengal. Research Square https://doi.org/10.21203/rs.3.rs-3503617/v
- Roy AB, Chatterjee L, Samanta T, Sinha S, Besra S (2022a) The significance of Ecopark, an urban park in Kolkata, West Bengal, in terms of the refuge of Herpetofauna. Journal of Entomology and Zoology Studies 10 (5): 110-114. https://doi.org/10.22271/j.ento.2022.v10.i5b.9044
- Roy AB, Chatterjee L, Samanta T, Sinha S, Besra S (2022b) The Value of An Urban Park in Preserving a Small Number of Wild Mammals in Ecopark, Kolkata, West Bengal, India. International Research Journal of Modernization in Engineering Technology and Science 04 (09): 1555-1560. https://doi.org/10.56726/irjmets30114
- Samanta T, Chatterjee L, Roy AB, Sinha S, Besra S (2022a) A checklist of wild mushrooms in three urban parks in Kolkata, India. Asian journal of Mycology 5 (2): 70-78. [In English]. https://doi.org/10.5943/ajom/5/2/6
- Samanta T, Chatterjee L, Roy AB, Sinha S, Besra S (2022b) Importance of Ecopark, Kolkata in the context of sustainability, compare to Rajarhat grassland, as a habitat for

Odonata (Dragonflies and Damselflies) diversity. World News of Natural Sciences 44: 165-175. URL: http://www.worldnewsnaturalsciences.com/wp-content/uploads/2022/06/WNOFNS-44-2022-165-175.pdf